Documentation Sheet

National Aerospace Laboratories

Class Unrestricted

No. of Copies 8

Title *Active Cancellation of Probing Effect with Simultaneous Multiple Desired Signals*

Author/s Nisha Purswani, Hema Singh, R M Jha

Division ALD

NAL Project No: A-8-602

Document No. PD AL 0712

Date of issue Oct. 2007

Contents 45 Pages 28 Figures 1 Tables 17 References

External Participation Nil

Sponsor x

Approval Head, ALD

Remarks x

Keywords Adaptive array processing, multiple desired signals, jammers, output SNR, output noise power, quiescent pattern, adapted pattern, weight coefficients, improved LMS, bandwidth, narrowband, wideband

Abstract

In a steered-beam adaptive array, for a single desired signal, steering weights are chosen such that the main beam of the quiescent pattern points in the direction of the desired signal. However when there are multiple simultaneous desired signals, the quiescent pattern has independent multiple beams in different directions. In this report, problem of adaptive array processing for multiple desired signals has been formulated and performance of the array has been analyzed in the presence of both the narrowband and wideband probing sources. Effects of factors such as input signal strength, weight coefficients, probing directions, bandwidths etc. that control the response of the array are discussed. The main objective is to study the application of steered beam adaptive array for multiple simultaneous desired signal environments. Computed results are validated against those available in the open literature.